REPORT OF THE ACTUARY

On An Actuarial Valuation of the System
as of June 30, 1973

An actuarial valuation of a retirement system is undertaken to establish the liabilities and reserve requirements for the accrued and prospective pension credits under the established benefit schedule. An actuarial balance sheet is prepared showing the accrued and prospective liabilities and the present and prospective assets available to meet these liabilities.

A calculation is made of the liabilities incurred for the several benefit obligations. The reserves required to meet these accrued liabilities for the lifetime of the members are determined. The factors of mortality, turnover in employment and interest earnings are basic in this procedure. Other factors are prominent in the actuarial process, including rates of salary and their progression until retirement of the members, disability expectancies and the ages at which members may be expected to retire.

Rates reflecting these basic factors that were formulated in a previous survey and investigation of operating experience of the system were applied in this valuation. Because of the marked variance in basic characteristics between State employees and teacher-members, separate rates were applied. Because of the diverse physiological conditions and employment factors between male and female members, a further division in rates was made for the factor of sex. Some variations from these established standards frequently occur in current operations. These are also considered by means of special adjustments of the results of the valuation.

BASIS OF VALUATION

The benefit and contribution provisions of the retirement plan forming the basis of the valuation are summarized in the appendix of this report. The several assumptions relative to the actuarial factors applied in this valuation are as follows:

1. Mortality expectancy: The 1951 Group Annuity Table (modified)

2. Interest rate: Compound interest at 5% per annum

3. Turnover factors: Assumed annual rates of withdrawal from all causes -

Age	Rate per 1,000
20	247
25	198
30	162
35	120
40	91
45	60
50	33
55	15
60 and over	Mortality only

4. Future salary increment: An annual increment of 4½%

5. Average age at retirement: 62 years

6. Disability rates: Class (1) rates of disablement from the Society of Actuaries 1952 Intercompany study were used. It was assumed that 15% of all disablements would occur in line of duty.

7. Marital status: 85% of employees in service assumed to be married with the average age of the wives 4 years less than that of the employees. 65% of the employees retiring on pension were married

8. Administrative expense: None provided

MEMBERSHIP STATISTICS

Detailed statistics forming the basis of the valuation were compiled and tabulated. Statistical tables reflecting this data are presented in the appendix. A summary thereof is as follows:

	State Employees		Teachers	
ACTIVE MEMBERS	Male	Female	Male	Female
Number	7,488	6,885	4,743	7,940
Percent of total	52.1%	47.9%	37.4%	62.6%
Annual salaries	$65,991,744	$46,322,280	$48,867,129	$79,296,780
Average salary	$8,813	$6,728	$10,300	$9,987
Average age	45.0	41.6	37.3	40.1
Average service	8.9	7.6	9.3	9.9

RETIREMENTS	State Employees Male	State Employees Female	Teachers Male	Teachers Female
Number	1,428	1,237	390	1,814
Percent of total	53.6%	46.4%	17.7%	82.3%
Average age at June 30, 1973	70.6	75.2	69.8	70.5
Retirements during year	204	191	47	191
Average age at retirement	63.2	63.6	62.4	63.7
Terminations	85	53	10	63
Average age at death	72.6	73.1	78.5	79.7

RESULTS OF VALUATION

The financial stability of any retirement system may be determined by comparing the accrued liabilities for earned pension credits, at the end of a fiscal period, by present assets. This assumes that the accruing pension credits are fully funded currently, and that the accrued pension liability is being systematically amortized.

This is not the case with the Employees' Retirement System which receives only a part of its currently accruing cost requirements. The system is funded on a partial reserve basis with the contributions by the State being at a lesser rate than the total cost of the accruing pension credit. The rate of funding for the system, or security ratio as it is commonly referred to, is only 33.9%. This is the extent to which the accrued liabilities are covered by net present assets.

The contributions by the employers are determined as the average annual requirements for benefits according to a 5-year projection of pension expenditures by the system. The rate per cent of contributions for the period of 5 years effective July 1, 1972 is 6.5% of payroll for State employees and 9.0% of payroll for teacher-members. The latter cost is shared equally by the State and the cities and towns. Partial funding results in a deferment of part of the currently incurred pension cost with the consequent increase in the actuarial deficit. As a result, the unfunded accrued liability or actuarial deficit is steadily increased. Such unfunded liability has been in an upward trend for a number of years and will in all probability continue to increase for an indeterminate period.

Even if full funding of currently accruing pension credits is provided, the unfunded accrued liability would continue to increase by the accruing interest on the unfunded liability at the rate of interest assumption in effect, which is 5% per annum.

Actuarial reserve funding. The full cost of financing current service of the members of the system, as a percentage of payroll, according to actuarial criteria which reflects the accrual principle, is as follows:

	State Employees	Teacher Members	Composite
Normal cost as a percentage of payroll	16.2%	20.3%	18.4%
Less, member contributions	5.0	6.0	5.5
Cost to the Employers	11.2%	14.3%	12.9%

VALUATION BALANCE SHEET

A Valuation Balance Sheet is presented in the following pages displaying the financial condition of the system at June 30, 1973. From a technical standpoint, a sound financial condition exists when the system has present assets equal to the difference between (a) the total of all accrued and prospective liabilities, and (b) the present value of future contributions to be received according to the prescribed rates. A system attaining this status will have provided in full for all accrued pension credits in accordance with actuarial requirements.

VALUATION BALANCE SHEET

JUNE 30, 1973

VALUATION BALANCE SHEET - JUNE 30, 1973

Statement of Assets, Liabilities and Reserves

A S S E T S

NET PRESENT ASSETS:		
Cash		$ (276,998)
Investments (Amortized book value for bonds - cost for stocks)		178,555,278
Accrued interest receivable		1,982,540
		$180,260,820
Less, Accounts Payable		38,833
		$180,221,987
DEFERRED ASSETS:		
Present value of future contributions on account of service credits after July 1, 1973		
State employees -		
Members	$ 38,388,512	
State of Rhode Island	60,123,493	
Teacher-Members -		
Members	$ 49,337,923	
State of Rhode Island	45,436,204	
Cities and Towns	45,436,204	238,722,336
UNFUNDED ACCRUED LIABILITY:		
Due from employers for unfunded pension credits -		
State of Rhode Island	$233,135,795	
Cities and Towns[1]	118,879,632	352,015,427
TOTAL ASSETS		$770,959,750

1/ The State of Rhode Island and the Cities and Towns share equally in the financing of teachers' pensions.

VALUATION BALANCE SHEET - JUNE 30, 1973

Statement of Assets, Liabilities and Reserves

LIABILITIES AND RESERVE REQUIREMENTS

FUTURE SERVICE LIABILITY:		
State employees	$ 98,512,005	
Teacher-members	140,210,331	$238,722,336
RESERVE REQUIREMENTS:		
RESERVE FOR MEMBER CONTRIBUTIONS -		
State Employees -		
For service retirement and disability annuities	$ 14,446,396	
For future refunds	18,933,851	33,380,247
Teacher-Members -		
For service retirement and disability annuities	$ 30,135,787	
For future refunds	15,399,162	45,534,949
RESERVE FOR TEACHERS' SURVIVOR BENEFITS -		5,620,780
RESERVE FOR EMPLOYER CONTRIBUTIONS -		
For service retirement and disability annuities on active members -		
State Employees -		
Total requirements	$ 99,635,138	
Less, Employee Contributions	14,446,396	85,188,742
Teacher-Members -		
Total requirements	$213,513,083	
Less, Employee contributions	30,135,787	183,377,296
RETIREMENT AND BENEFITS RESERVE -		
State employees		59,722,143
Teacher-members		119,413,257
TOTAL LIABILITIES AND RESERVES		$770,959,750

The following explanation of the several items comprising the Valuation Balance Sheet is given to facilitate an understanding of their function and meaning.

Net Present Assets comprise the assets on hand as shown by the financial reports supplied by the system as of June 30, 1973.

Deferred Assets consist of the obligations of the members and the employers for service to be rendered subsequent to June 30, 1973. They represent actuarially determined amounts, giving effect to the factors of mortality, interest, turnover and others that enter into the computation of liabilities and annuities and benefits that accrue on account of future service.

Unfunded Accrued Liability constitutes the amounts accrued and unpaid on account of service rendered prior to the balance sheet date. This is an accrued obligation of the State and the Cities and Towns to be discharged in future years by increased financial allocations to the system.

Future Service Liability is an offset to Deferred Assets and represents the present value of the proportionate pension credits to be earned by the members during future service extending from the balance sheet date to the assumed ages of retirement.

Reserve for Members' Contributions consists of the total of members' contribution credits at the balance sheet date. Part of these credits is payable as a refund in future years to members withdrawing from service on account of resignation,

dismissal or death. The remainder is to be applied to finance a portion of the annuities and benefits payable to members now in service who will ultimately qualify for retirement.

Reserve for Teachers' Survivor Benefits represents the accumulation of contributions by the teacher-members and the Cities and Towns towards the survivor benefit provision specifically applicable to these members.

Reserve for Employer Contributions represents the amounts that must be provided to finance the employers' portion of the accrued pension credits for those employees now in service who will ultimately qualify for retirement and disability pensions.

Retirement and Benefits Reserve constitutes the amount reserved to payout during the future lifetime of the pensioners presently on the pension roll the pensions granted and in force at the balance sheet date.

CERTIFICATION

The accompanying Valuation Balance Sheet exhibits the assets, accrued liabilities and reserves of the system as of June 30, 1973. Present assets were taken from the financial statements submitted by the Senior Accountant of the system.

In our opinion, this Valuation Balance Sheet correctly presents the condition of the Employees' Retirement System of the State of Rhode Island at June 30, 1973 after giving effect to all accrued liabilities and actuarial reserve requirements for the several annuities and benefits under the applicable law in effect at such date.

A. A. Weinberg

Actuary

November 30, 1973

RECONCILIATION OF THE INCREASE IN THE UNFUNDED ACCRUED LIABILITY

1. Normal cost requirements -	
12.9% of payroll of $240,477,933	$31,021,653
Less, employers' contributions for the year	16,372,459
Deficiency in current year's contributions	$14,649,194
2. Interest on the unfunded accrued liability at June 30, 1972	14,608,618
3. Increase in liability due to 1973 amendments	9,331,452
4. Adjustment of actuarial factors to reflect current operating experience -	
(a) Salary projection scale	13,916,211
(b) Mortality	8,690,591
TOTAL	$61,196,066
Less, excess investment income above the 5% interest rate assumption	1,353,000
BALANCE	$59,843,066

FUTURE PENSION AND BENEFIT PAYOUTS

For the purpose of illustrating the importance of adequate funding of pension obligations on a systematic basis, giving effect to the accruing aspects thereof, there is presented herein a projection of pension and benefit payouts for a number of years in the future. Such a statement should serve to dramatize and focus attention on the magnitude of the pension obligation and its full meaning in terms that may be readily understood by the public officials having to do with the formulation of budgets and more particularly by members of the Legislature.

The following projection of future pension payouts clearly illustrate the amounts of pension payments that the system will be required to meet in future years under the present conditions of the retirement plan.

Year	Amounts of future pension payments (in millions)
1973	$18.9
1976	27.7
1979	37.3
1982	49.2
1985	62.4

It should also be noted that any liberalizing changes in the provisions of the plan will effect an increase in the foregoing amounts.

FINANCING THE PENSION OBLIGATION

The cost of retirement benefits in any year is represented by the value of the pension credits earned by the active members during the year. These yearly pension credits form a proportionate part of the ultimate retirement benefits which would become due and payable to the members as they qualify for retirement by fulfilling the prescribed conditions as to age and service.

Pension and benefit payments during any year, therefore, are derived from a combination or accumulation of earned pension credits covering a number of productive years which represent the total periods of service rendered by the annuitants. It is the accumulation of these pension credits during the service of the members which constitutes the reserve requirements for financing the pension payments to the qualifying members when the obligations mature. This current accumulation of pension credits represents the real cost of the benefits for any fiscal period.

The foregoing illustrates the accrual or reserve principle that governs a retirement system. Actuarial criteria reflect the accrual concept. It underlies all retirement system operations. Even if a retirement law did not specifically spell out the methods of financing the pension credits, the accrual principle would be implicit in its basic provisions. Rates of contribution are formulated with the view of accumulating adequate reserves representing the pension credits to meet the ultimate payouts for the retirement benefits. Revenues from these rates are substantially in excess of the current expenditures for retirement benefits. This excess represents the reserve for meeting the future pension and benefit payments.

It is this reserve which is created by the application of these contribution rates that seems to be a source of temptation to officials of government, particularly those having to do with the formulation of budgets. This has brought about the withholding of revenues from the retirement system by means of arbitrary reductions in appropriations below the actual requirements for the accruing pension credits. Pressures also arise from time to time for the application or diversion of some or all of the accumulated reserves for other governmental purposes.

The Employees' Retirement System of the State of Rhode Island has been affected by this process. It has experienced a substantial curtailment of prescribed revenues during recent years. The effect of this practice, if continued, will be a steady depletion of its reserves and a deterioration of its financial condition. This has already occurred as will be noted by a reduction in the funded rate or security ratio this past year. In the course of time, if this process is continued, the assets of the system would be reduced to a point where a diversion of members' contribution credits may be necessary to

meet a part or all of current pension payments. The statement of projected payouts under the existing benefit schedule referred to in the preceding section of this report is irrefutable evidence of the shortcomings of a policy designed to curtail the revenues of the system below its accruing cost requirements.

In its true concept, pension cost is a current operating expense of government. It is an obligation which cannot logically be deferred. It has a direct and immediate relationship to the entire fiscal operations of government. There is no short cut method or formula for financing this cost. A retirement plan is considered to be a ligitimate employee welfare program of governmental concern. The principle that government should bear a measure of responsibility for employees whose productivity has become impaired due to old age or disability is now generally accepted. Since this is the case, government should face up to its responsibility in this area. It should be willing to meet the cost of pensions on the most practical and economical basis. This basis is the one that reflects the accruing or current budgeting concept.

FINANCIAL STATEMENTS

FINANCIAL BALANCE SHEET - JUNE 30, 1973

A S S E T S

Cash			$ (276,998)
Accrued Interest Receivable			1,982,540
Investments		$179,232,683	
Less: Unamortized Discounts and Premiums on Bonds (Net)		677,405	
Net Investments			178,555,278
Total Assets			$180,260,820

LIABILITIES AND RESERVES

Current Liabilities			
Unclaimed Benefits			$ 38,834
Members' Contribution Reserves			
State Employees	$33,380,247		
Teachers	42,940,627		
Teachers' Survivors	2,594,322	$ 78,915,196	78,915,196
General Reserves			
State Employees	$64,356,986		
Teachers	31,322,117		
Teachers' Survivors	5,620,780		
Certain State Employees	4,067		
Certain Teachers	2,840	101,306,790	101,306,790
Total Liabilities and Reserves			$180,260,820

STATEMENT OF REVENUES AND EXPENDITURES

FISCAL YEAR ENDED JUNE 30, 1973

REVENUES

Member Contributions -			
State Employees		$ 5,332,134	
Teachers		7,335,072	
Teachers' Survivors		436,788	
Insurance Premiums -			
Legislators	$ 2,175		
Retired Legislators	8,689	10,864	$13,114,858
General Fund Appropriations -			
State Employees		$ 3,753,007	
State Employees a/c FF Costs		2,212,089	
Teachers		4,528,599	
Certain State Employees		2,000	
Certain Teachers		2,167	10,497,862
Municipal Contributions -			
Teachers		$ 5,446,162	
Teachers' Survivors		428,437	5,874,599
Other Contributions -			
Employee transfers - Municipal		$ 728,925	
Miscellaneous Refunds		5,874	
Unclaimed Benefits		15,616	
Miscellaneous Receipts - Interest		95,238	845,653
Investment Income:			
Interest Earnings		$ 9,303,799	
Capital Gain		146,005	9,449,804
TOTAL REVENUES			$39,782,776

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EXPENDITURES

Pensions and Death Benefits -		
State Employees	$ 6,193,906	
Legislators	233,376	
Teachers	12,337,720	
Teachers' Survivors	71,313	
Certain State Employees	12,065	
Certain Teachers	1,840	$18,850,220
Death Benefits:		
State Employees	$ 786,911	
Legislators	19,200	
Teachers	299,753	1,105,864
Refunds of Contributions -		
State Employees	$ 1,020,814	
Teachers	1,002,856	
Teachers' Survivors	168,383	
Interest - Teachers' Survivors' Contribution Refunds	16,235	
To Municipalities a/c Teachers	62,506	
To Municipalities a/c Teachers' Survivors	24,779	2,295,573
Sundry -		
Unclaimed Benefits	$ 7,292	
Miscellaneous Refunds	154,283	
Transferred to Municipal	4,005	165,580
Investment Expense -		
Postage and Insurance on Purchases		114
TOTAL EXPENDITURES		$22,417,351
EXCESS OF REVENUE OVER EXPENDITURES		$17,365,425

ANALYSIS OF REVENUES AND EXPENDITURES
FISCAL YEAR ENDED JUNE 30, 1973

	State Employees Amount	%	Teachers Amount	%	Totals
REVENUES					
Members' Contributions	$ 5,342,998	31.0%	$ 7,771,861	34.5%	$13,114,859
State Contributions	5,967,096	34.6	4,530,765	20.1	10,497,862
Municipal Contributions			5,874,598	26.1	5,874,598
Investment Earnings	5,140,631	29.7	4,309,059	19.1	9,449,690 1/
Miscellaneous	805,662	4.7	39,992	0.2	845,653
Total Revenues	$17,256,387	100.0%	$22,526,275	100.0%	$39,782,662
EXPENDITURES					
Pensions	$ 6,027,551	34.9%	$11,487,005	51.0%	
Cost of Living Adjustment	411,796	2.4	923,868	4.1	$18,850,220
Death Benefits	806,111	4.7	299,753	1.3	1,105,864
Refunds - Contributions	1,020,814	5.9	1,274,760	5.7	2,295,574
Miscellaneous	164,626	1.0	953		165,579
Total Expenditures	$ 8,430,898	48.9	$13,986,339	62.1	$22,417,237
Excess Revenues over Expenditures to Reserves	$ 8,825,488	51.1%	$ 8,539,937	37.9%	$17,365,425

1/ After deduction for investment expense of $114.

ANALYSIS OF INVESTMENT INCOME
FISCAL YEAR ENDED JUNE 30, 1973

Investment Income - Interest and Dividends		$8,677,076
Add:		
Accrued Interest June 30, 1973	$1,982,540	
Accrued Interest July 1, 1972	1,839,409	
	$ 143,131	
Discounts Amortized	536,458	
Total Additions		679,589
Total		$9,356,665
Less:		
Accrued Interest Purchased	$ 25,817	
Premiums Amortized	27,049	
Total Deductions		52,866
Net Investment Earnings		$9,303,799
Capital Gain		146,005
Total Investment Income		$9,449,804